

REMARKS

Claims 2-6 are now pending in this application. Claim 6 is in independent form.

Claims 2 and 4-6 have been amended, claim 1 is cancelled, and no claims are added.

Claim Rejections Under 35 U.S.C. § 102

The Office Action rejects claims 1-3 and 5-6 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 7,161,576 issued to Kawabe et al. (hereinafter "Kawabe"). These rejections are respectfully traversed.

The Office Action asserts that Kawabe discloses all the features of claims 2-3 and 5-6. However, as demonstrated below, this is not the case.

In Kawabe, impulse type drive is performed on the assumption that image data is written synchronously in multiple lines. (See, e.g., lines G1-G4 of Figs. 6, 15, ; col. 11, lines 31-33.) However, when the image data is written synchronously in multiple lines all the time, the vertical resolution is reduced. In order to address this problem, Kawabe discloses a technique in which, in the case of a still image, the drive type is switched from impulse type drive to a hold type drive so that image data is written in each line. Therefore, Kawabe does not disclose an arrangement in which the drive modes are switched between modes in which data is written in each line.

More particularly, in one or more embodiments of the present disclosure, the impulse drive mode and the hold drive mode are switched on the assumption that image data is written sequentially in each scan line. In contrast, Kawabe describes "unlike the first embodiment, data is not written in multiple lines synchronously, the image information of an original image does not have to be lost. Therefore, the vertical resolution is not reduced. In this point of view, the image quality can be more improved." (Col. 32, lines 19-23.) This is because the third embodiment does not have a problem such that "when the image signal has more resolution than the half of the resolution of the display array, the image information has to be reduced.

Alternatively, in that case, the scanning and the display mode have to be switched back to the conventional every line scanning and the hold type of display mode.” (Col. 31, lines 6-27.)

In other words, the third embodiment of Kawabe only describes an arrangement in which the impulse type drive is realized by every line scanning. This case does not cause a problem such that “the scanning and the display mode have to be switched *back* to the conventional every line scanning and the hold type of display mode,” as described above. Accordingly, in the third embodiment of Kawabe, it is clear that switching to the hold type is not necessary. Therefore, the third embodiment of Kawabe is different from the present invention in which the hold type and the impulse type are switched, on the assumption that image data is written sequentially in each line. This difference is significant.

Further, Kawabe describes “when the user always gives the priority for the vertical resolution, the scanning does not have to be switched to two-line synchronous writing and interlace scanning even if the data generating circuit 102 ... determines that the images have motion. The types of scanning may be selected by the control bus 109 in Fig. 1.” (Col. 33, line 64 to col. 34 line 2.) This explains a case where the first embodiment and the third embodiment of Kawabe are combined as described in col. 32, lines 24-40. In this case, the two-line synchronous writing and interlace scanning are carried out when an impulse type drive is performed. This is clear from the description “like the first embodiment, the vertical resolution is reduced according to this method. Therefore, a means is provided for switching between every line scanning for a still image and scanning according to this method for moving pictures.” (Kawabe, col. 33, lines 27-38.)

In other words, according to the technique in which the first embodiment and the third embodiment of Kawabe are combined, like the first embodiment of Kawabe, image data is synchronously written in multiple lines when the impulse type drive is performed. Moreover, for preventing deterioration in the vertical resolution due to the multiple line synchronous writing, the display type is switched to a hold-type display according to need and image data is written in by every line scanning.

That is according to the technique in which the first embodiment and the third embodiment of Kawabe are combined, multiple line synchronous writing is carried out in a case where the impulse type drive is performed. Therefore, the combination of the first embodiment and the third embodiment of Kawabe is different from the present invention in which “the input image data written sequentially in each of scan lines of the liquid crystal display panel” in the case of the impulse type. This difference is significant.

In addition, Kawabe neither discloses nor suggests a technique in which the impulse drive mode and the hold drive mode are switched on the assumption that image data is written sequentially in each of scan lines.

Accordingly, claim 6 is believed to be in condition for allowance. Claims 2, 3 and 5 depend from claim 6 and are therefore believed to be in condition for allowance for the same reasons. Withdrawal of the rejection and reconsideration of the claims are respectfully requested.

Claim Rejections Under 35 U.S.C. § 103

The Office Action rejects claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Kawabe in view of U.S. Patent No. 7,084,861 issued to Iisaka (hereinafter "Iisaka"). This rejection is respectfully traversed.

Claim 4, as amended, depends from claim 6, which is believed to be in condition for allowance, as provided above. Moreover, claim 4, as amended, recites “wherein the voltage varying device varies the level of the gradation voltage to be applied to the liquid crystal display panel, in accordance with the input image data and the detected temperature in the display.” In contrast, Iisaka discloses that “control is performed so that the pulse width of the pulse signals ... may be altered in each field in accordance with the temperature” (col. 9, lines 35-43), where the pulse width corresponds to gradations of transmissivity (see col. 18, lines 37-50). Clearly, voltage level and pulse width are different characteristics of a signal, require different circuitry to

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implement, and either produce different results or achieve results in a substantially different way when applied to the control of LCD pixels.

Accordingly, Applicants request the withdrawal of the § 103 rejection and reconsideration of claim 4.

CONCLUSION


In view of the above amendment, applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact James C. Larsen, Reg. No. 58,565 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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